Redfish in Division 3O **Advice June 2019 for 2020-2022**

Recommendation for 2020-22

There is insufficient information on which to base predictions of annual yield potential for this resource. Stock dynamics and recruitment patterns are also poorly understood. Catches have averaged about 12 000 t since the 1960s and over the long term, catches at this level appear to have been sustainable. Scientific Council is unable to advise on an appropriate TAC for 2020, 2021 and 2022.

Management objectives

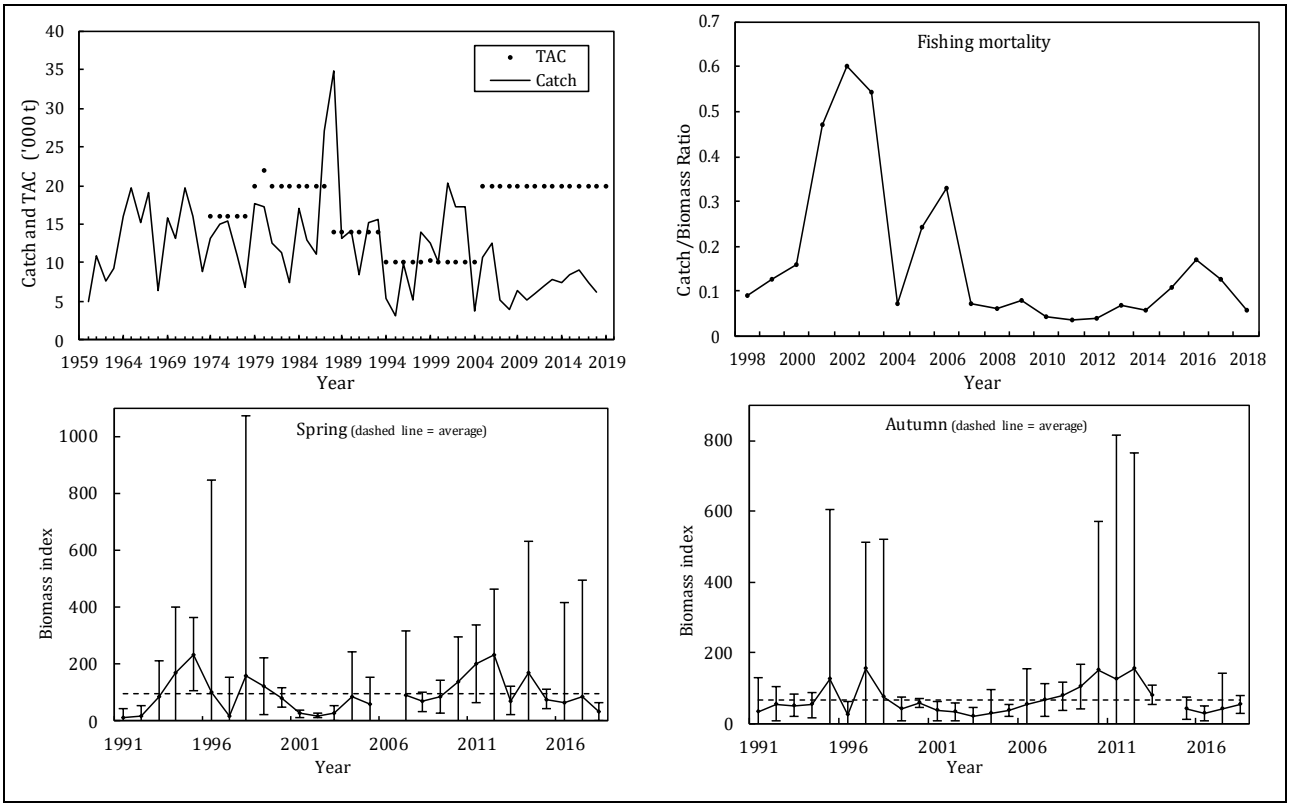
No explicit management plan or management objectives have been defined by the Commission. Convention General Principles are applied.

Convention General Principles	*Status*	*Comment/consideration*
Restore to or maintain at B_{msy}	○	B_{msy} unknown
Eliminate overfishing	●	Fishing mortality low
Apply Precautionary Approach	●	Reference points not defined
Minimise harmful impacts on living marine resources and ecosystems	●	VME closures in effect, low bycatch reported
Preserve marine biodiversity	○	Cannot be evaluated

● OK
● Intermediate
● Not accomplished
○ Unknown

Management unit

The management unit is confined to NAFO Div. 3O.



Stock status

Survey index values for the past three years were generally at or below their time-series average compared to relatively high values observed in 2010 to 2012. Current fishing mortality is low, and recent recruitment is unknown.

Reference points

Not defined.

Projections

Quantitative assessment of risk at various catch options is not available for this stock at this time.

Assessment

This assessment is based upon a qualitative evaluation of trends in stock biomass and a fishing mortality proxy. The assessment is considered data-limited and as such, associated with relatively high uncertainty. Input data are research survey indices and fishery data.

The next full assessment of this stock will be in 2022.

Human impact

Mainly fishery-related mortality. Other sources (e.g. pollution, shipping, oil-industry) are undocumented.

Biological and environmental interactions

Redfish are slow growing and bear live young. Recently, genetic analyses linked strong year-classes of juvenile *S. fasciatus* sampled from the Gulf of St. Lawrence with adults collected in NAFO Divs. 3LNO and southern 3Ps. Local plus distant dispersal of young fish makes the influences of physical and environmental processes on stock dynamics difficult to interpret. The Grand Bank (3LNO) EPU is currently experiencing low productivity conditions and biomass has declined across multiple trophic levels and stocks since 2014.

Fishery

Redfish are caught primarily in bottom trawl fisheries, but in the past, some landings were reported from mid-water trawl fisheries. In directed redfish fisheries, Atlantic cod, American plaice, witch flounder and other species are landed as bycatch. In turn, redfish are also caught as bycatch in fisheries directing for other species. The fishery in NAFO division 3O is regulated by minimal mesh size and quota.

Recent catch estimates and TACs ('000 tonnes) are:

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
TAC	20	20	20	20	20	20	20	20	20	20
STATLANT 21	6.5	6.0	7.0	7.8	7.5	7.9	8.6	7.3	4.3	
STACFIS	5.2	6.0	7.0	7.8	7.5	8.4	9.0	7.5	6.1	

Effects of the fishery on the ecosystem

The impact of bottom fishing activities on major VMEs in the NRA has been assessed. The risk of Significant Adverse Impacts (SAIs) on coral and large gorgonian VMEs was estimated to be low, while this risk for seapen VMEs has been estimated as high. Impacts on other VMEs (erect bryozoans, large size sea squirts, crinoids, cerianthid anenomes, and small gorgonian corals) were not assessed. This assessment of bottom fishing impacts on VMEs does not include waters within coastal states jurisdictions.

A large area of Div. 3O has been closed to protect corals.

Special comments

Length data from commercial fisheries suggest that the Div. 3O redfish fishery takes predominantly immature fish.

Sources of information

SCR Doc. 19/15, 18, SCS Doc. 19/06, 09, 10, 11.